



Satellite assets uses for safety and environment protection

Magg. CC RTL tlm Angelo CASALINO



- “S.I.T.A.” - Earth observation for environment protection
- “Operating rooms” - GPS Positioning and situational awareness
- “Armasat” – satellite telecommunications



→ Earth observation for environment protection

The “SITA” project

UE National Operative Programme 2000-2006 and
2007-2013

“Safety for the development of the midday of Italy”



Objectives

- Check of the territory using the emergent technologies in analisys of data and territorial images
- Realization of a system to defence the "quality" of the environment, relating to the following ecosystems:
 - urban large areas
 - rural and farm areas
 - coastal water
 - watershed
- Improvement of capabilities in prevention and contrast to the crime in the areas:
 - waste disposal and dangerous substances
 - pollution of the water-bearing layers and coasts
 - unauthorized housebuilding
 - damage to the ecological system



Environmental photogrammetry

SATELLITE IMAGES



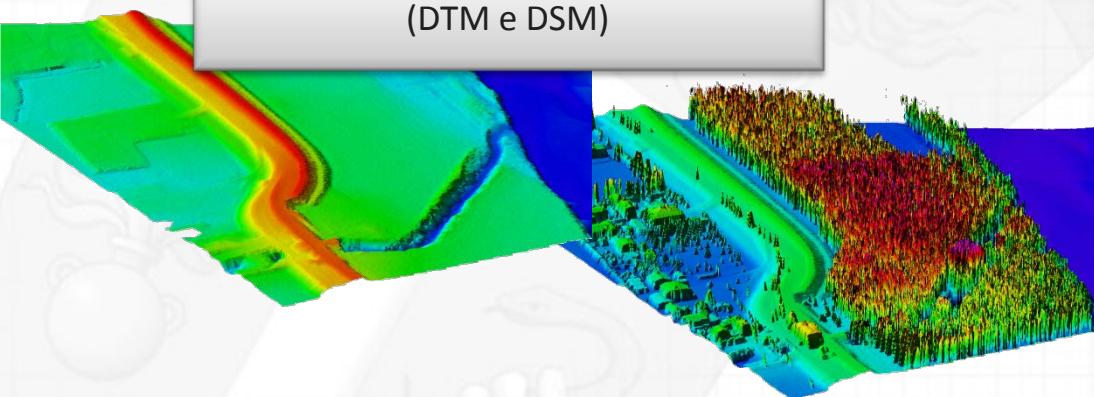
*Immagine Landsat 5-TM della
Foce del Tevere*

Variazione termica
sulla superficie delle
acque

ORTOPHOTOS OVER VECTORIAL MAPS



DIGITAL TERRAIN/SURFACE MODEL (DTM e DSM)



3D MODELLING





GIS: Association between operative and cartographic data

Lazio

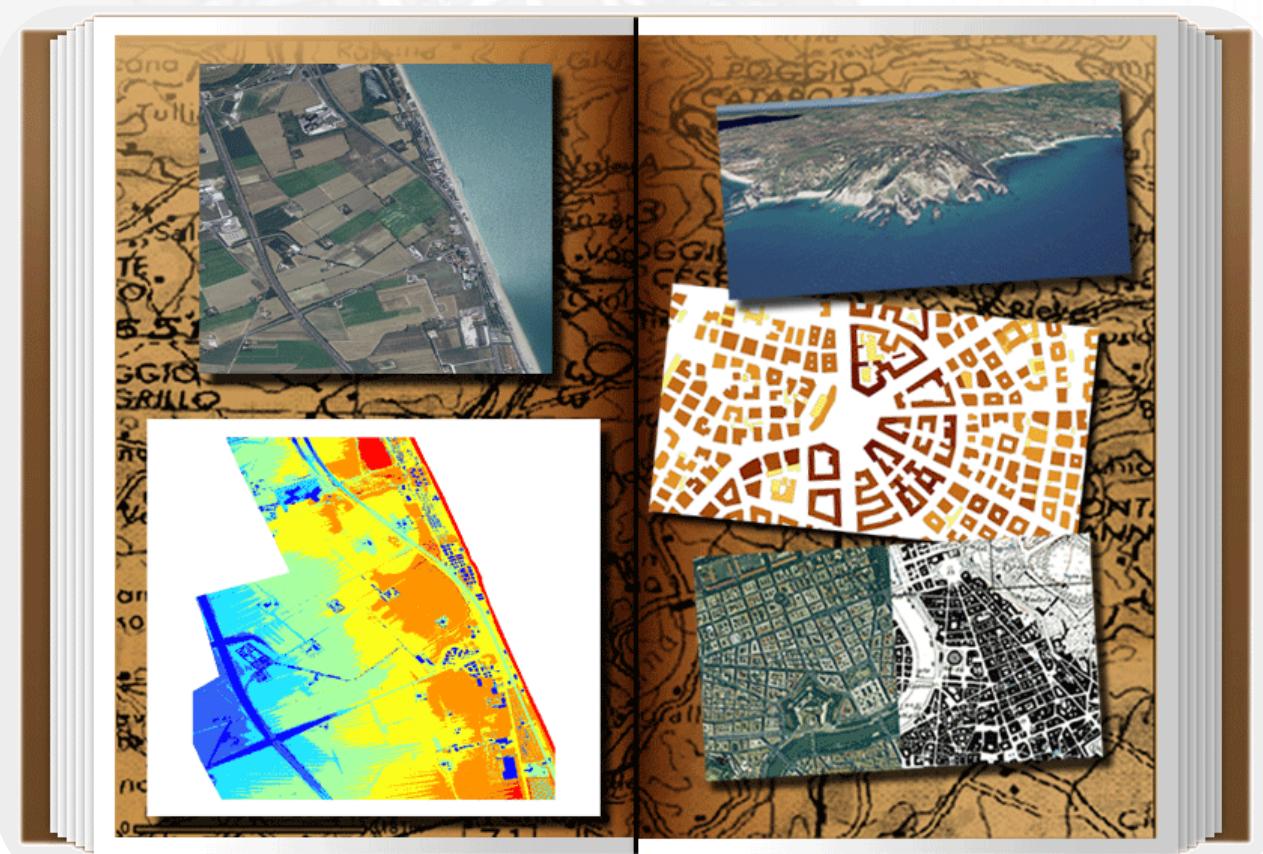
- Fr_zone_abitate.shp
- Vt_ferrovie.shp
- Rm_ferrovie.shp
- Ri_ferrovie.shp
- Lt_ferrovie.shp
- Fr_ferrovie.shp
- Vt_autostrade.shp
- Rm_autostrade.shp
- Ri_autostrade.shp
- Lt_autostrade.shp
- Fr_autostrade.shp

Lifstruc	Lifsthr	Lifstini	Lif
0	1	0	25
0	385	0	387B
E	40	0	36

PolyLine	40390020333618	70	VIA CAPRILE
PolyLine	40390021915262	60	VIA MESULA
PolyLine	40390022619175	40	VIA DEI MONASTERI
PolyLine	40390022948082	30	LUNGOTEVERE MARESCIAL
PolyLine	40390020332253	70	
PolyLine	40390020358103	60	VIA FOGLIANO
PolyLine	40390020358005	60	VIA ANAPO
PolyLine	40390021920007	20	VIA DODRTO NORDA SUL

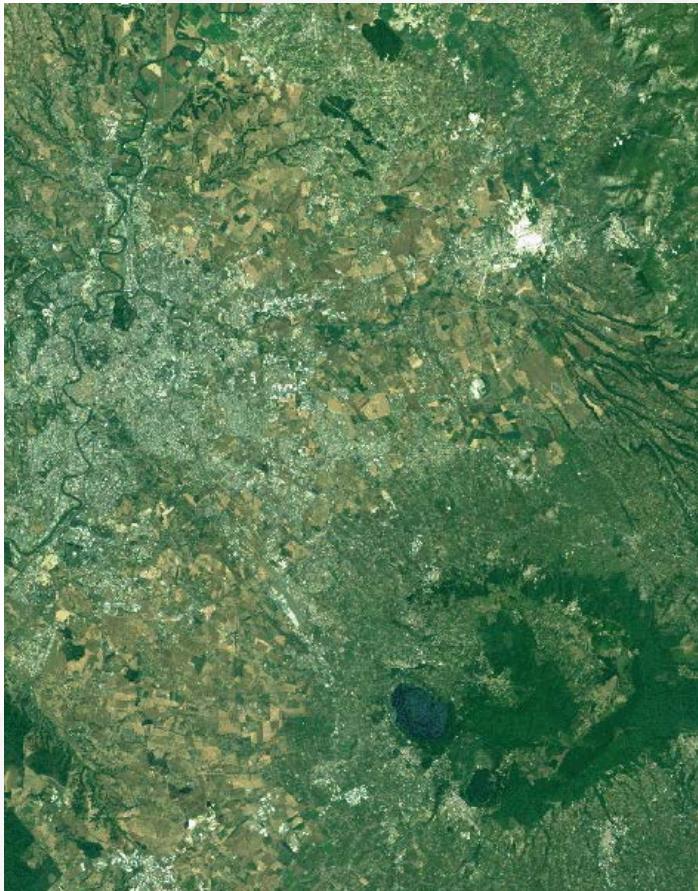


Cooperation with “Ministero dell’Ambiente” – P.C.N. Portale Cartografico Nazionale (National Cartographic Portal)





Cooperation with “MARSEC” (Mediterranean Agency for Remote Sensing and Environmental Control) satellite images “on demand”





“MARSEC” (Mediterranean Agency for Remote Sensing and Environmental Control) is able to provide in a short time (24 hours) panchromatic images “on demand” at a very high resolution.

Israelian “eros B” used

Operative scenarios:

- ports and customs control;
- deforestation studies;
- monitoring of quarries and illegal disposal of waste



Earth Observation

TO BE

Open portal in “Carabinieri Intranet”
Rapid download of the required satellite image



→ GPS Positioning and situational awareness

The “Operating Rooms” project

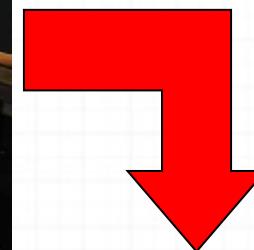


Objectives

- Coordination and Control of human resources employed in territory control services
- Interventions and emergencies automatized management
- **Gps-localization** of means and men in order to identify the fittest and nearest resources to solve the reported problem
- Remote control of the systems installed above Carabinieri cars



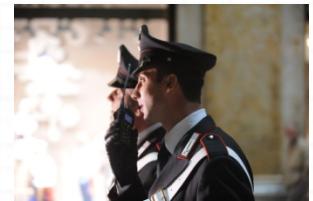
Incoming calls
and activations



Resources
management



Choise of the fittest vehicle ...



CC12 - Cartografico

MESSAGGI RICEVUTI: 0 WARNING: 0

Archivi

VIE MEZZI EVENTI OBETRIVI

SEGNALAZIONE (P) 25/03/2002 11:58:43

SOCORSO EMERGENZE - 7

COMUNE: ROMA

INDIRIZZO: PORTA ANGELICA, VIA DI

CINICO

P

COMPETENZA: 06589752

STAZI: 06589752

INSCRIZIONE: COMPI

INCIDENTE

INCIDENTE

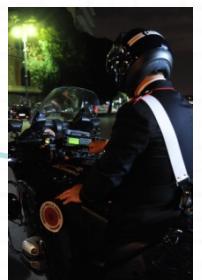
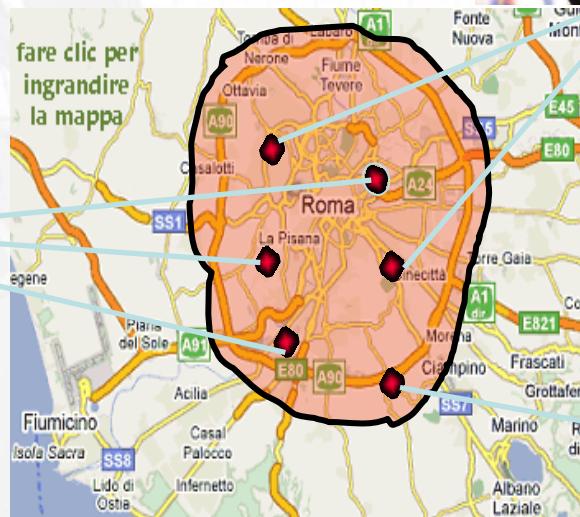
Mappe: ITALIA

Scalo corrente: 2000

500

555620

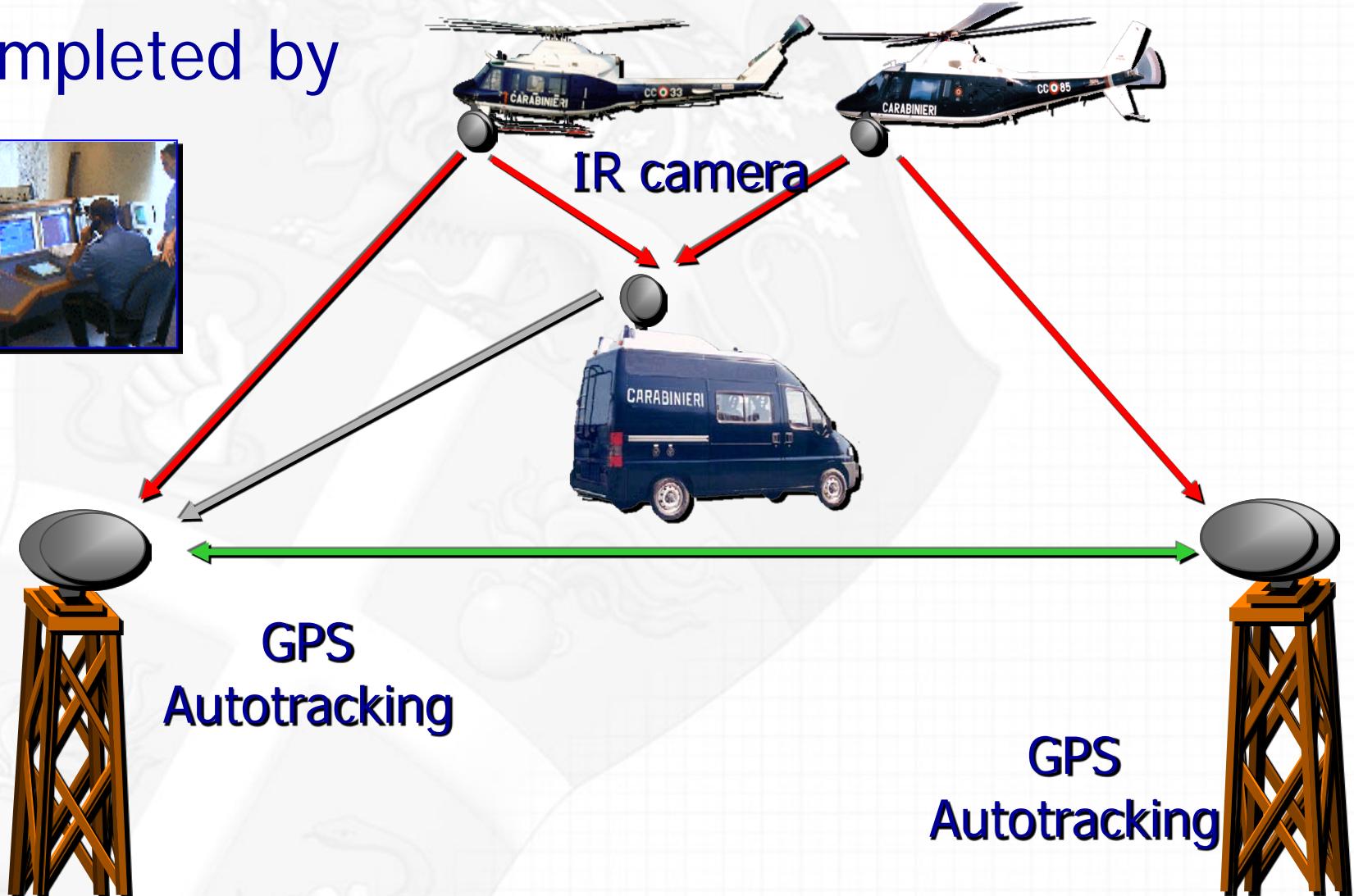
12:00



... according to satellite positioning and other informations



Situational awareness is completed by





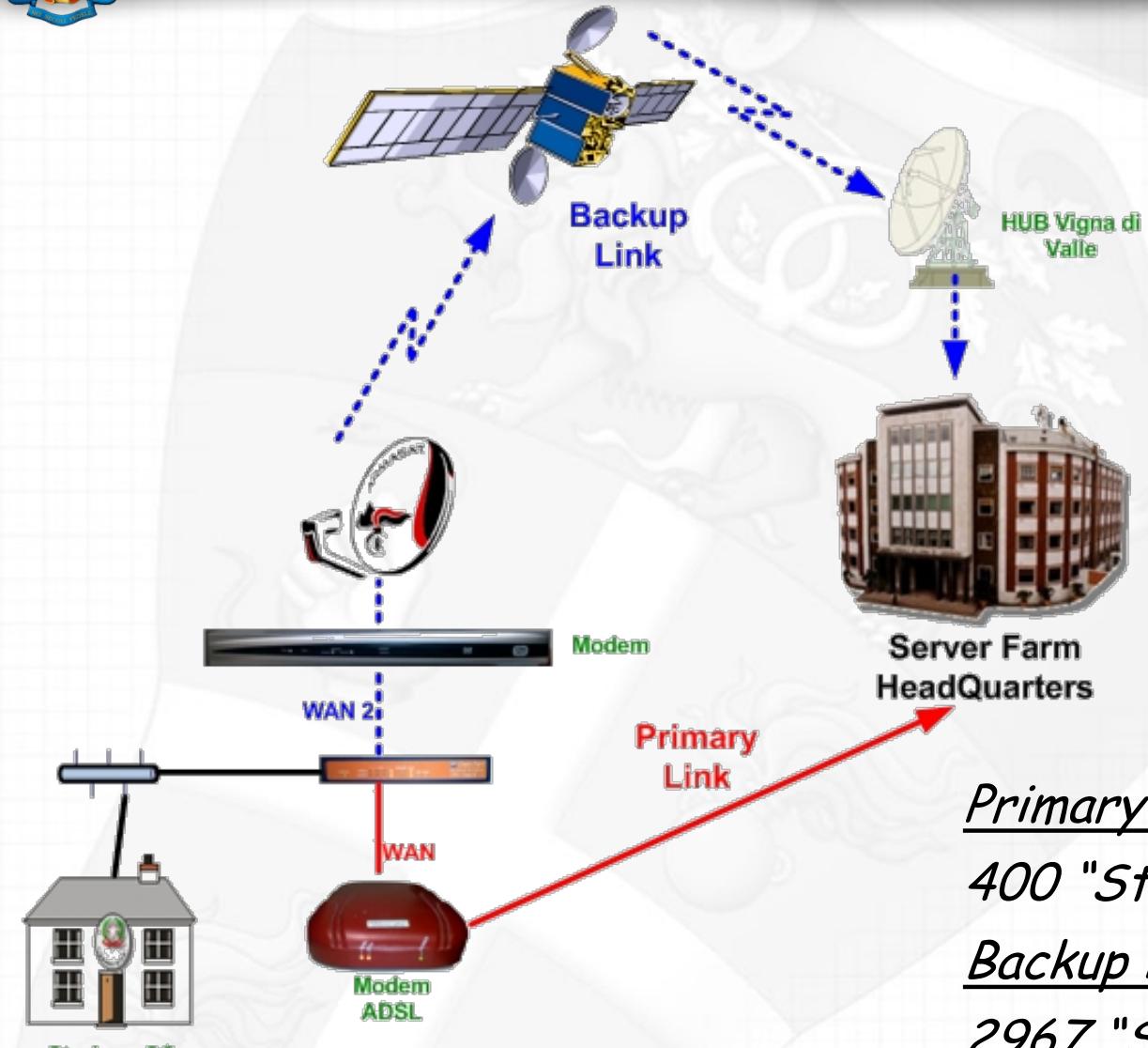
→ satellite telecommunications

The “Armasat” project

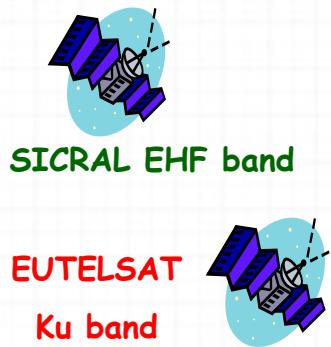


Objective

Provide proper connectivity to “Carabinieri” commands unreached by “commercial networks”



Primary Data-Link for:
400 "Stazioni CC" (**Ku band**)
Backup Data-Link for:
2967 "Stazioni CC" (**Ku band**)
283 "Compagnie CC" (**EHF band**)





Artes – Roma, 18-19 Aprile 2013
Arma dei Carabinieri

Thank you for your attention